

AMENDMENTS TO THE DRAWINGS

The attached Replacement Sheet of drawings includes changes to Fig. 5. This Replacement Sheet replaces the original sheet including Fig. 5. The changes to Fig. 5 are illustrated in the attached Annotated Sheet.

Attachments: Replacement Sheet
 Annotated Sheet

REMARKS

Applicants thank the Examiner for the thorough consideration given the present application. Claims 5, 6, and 8-11 are pending in the present application. Claims 5-8 have been amended. Claim 7 has been canceled. Claims 9-11 are new. Claims 5 and 9 are independent claims. The Examiner is respectfully requested to reconsider the outstanding rejections in view of the above amendments and the following remarks.

Drawings

The Examiner objected to Fig. 5 in the drawings, asserting that the relative optical phases of the OUTPUT RZ-DPSK SIGNAL should read " $0 \pi 0 \pi 0 0 \pi 0 \pi \pi 0$." Attached hereto is a corrected drawing in which Fig. 5 has been amended as suggested by the Examiner. Therefore, this objection should be withdrawn.

Acknowledgment of Information Disclosure Statements

The Examiner has acknowledged the Information Disclosure Statements filed on December 23, 2005 and December 18, 2006. Copies of the corresponding PTO/SB/08 forms have been received from the Examiner indicating that all references cited therein have been considered. No further action is necessary at this time.

Claim Objection

The Examiner objected to claim 6, asserting that " $(0, p)$ " should be replaced with " $(0, \pi)$." Claim 6 has been amended to as suggested by the Examiner. Therefore, this objection should be withdrawn.

Rejection Under 35 U.S.C. § 103

Claims 5 and 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mizuhara (US 6,535,316) in view of Miyamoto et al. (US 6,559,996). Further, claims 7 and 8 stand rejected under § 103(a) as being unpatentable over Mizuhara and Miyamoto, and further in view of Conradi (US 2003/0156774). These rejections, insofar as they pertain to the presently pending claims, are respectfully traversed.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). It is respectfully submitted that Mizuhara, Miyamoto, and Conradi, when taken separately or in obvious combination, fail to teach or suggest every feature of the claimed invention.

As amended, independent claim 5 now requires the second encoder to generate the electric RZ differential signal from a “differentially encoded signal comprising a positive phase differential signal and a reverse phase differential signal” by “synchronizing the positive phase and the reverse phase differential signals with a clock signal.” This feature is neither taught nor suggested by the abovementioned references.

In the rejection, the Examiner asserts that “Conradi teaches in FIG. 5 a NRZ-to-RZ converter 600 comprising a AND signal and a clock signal” (see Office Action of 07/30/2009 at page 4). However, Fig. 5 of Conradi does not teach or suggest synchronizing two differential signals, which are inverted forms of one another, with a clock signal in order to generate an electric RZ differential signal. As shown in Fig. 5, Conradi is operative only to synchronize one signal with a clock signal.

Moreover, it would not have been an obvious to modify Mizuhara to synchronize two differential signals, which are inverted versions of one another, with a clock signal. Mizuhara’s configuration specifically requires that the data signal be converted into separate (but identical) RZ (return-to-zero) signals before one of them is inverted. As such, by the time Mizuhara

produces two signals which are inverted with respect to one another, they are already in return-to-zero format – there would be no reason to synchronize either of them with a clock signal.

Furthermore, Miyamoto does not teach or suggest converting differential signals into RZ signals in the electrical area; Miyamoto performs the NRZ-to-RZ conversion in the optical area. Accordingly, Mizuhara, Miyamoto, and Conradi, taken separately or in obvious combination, fail to teach or suggest generating an electric RZ differential signal by synchronizing two differential signals, which are inverted versions of one another, with a clock signal, as presently claimed.

At least for the reasons set forth above, Applicants respectfully submit that independent claim 5 is in condition for allowance. Accordingly, claims 6 and 8 are allowable at least by virtue of their dependency on claim 5. Therefore, the Examiner is respectfully requested to reconsider and withdraw the rejections under 35 U.S.C. § 103.

New Claims

Claims 9-11 are new. These claims essentially recite the subject matter of presently pending claims 5, 6, and 8 in method formal. Accordingly, Applicants submit that the filing of these new method claims does not add new matter to the present application, and such claims are allowable over the aforementioned references.

Conclusion

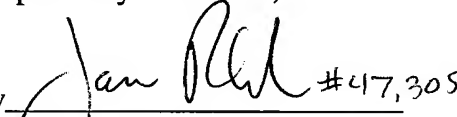
In view of the above remarks, it is believed that the claims clearly distinguish over the patents relied on by the Examiner, either alone or in combination. Therefore, the Examiner is respectfully requested to reconsider the outstanding rejections and issue a Notice of Allowance in the present application.

Should the Examiner believe that any outstanding matters remain in the present application, the Examiner is respectfully requested to contact Jason W. Rhodes (Reg. No. 47,305) at the telephone number of the undersigned to discuss the present application in an effort to expedite prosecution.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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Attachments